



GRADUATED OPTICAL COLLIMATOR™
Developed by MERGER MINES CORPORATION

Merger Mines Corporation has applied the academic conceptualization, computer modeling, and study of laser technology to now actively engineer and design inaugural “thermal fracturing” prototype units for the mining industry and adjunct applications in the areas of construction and rescue where safe and efficient removal of material is required. Based on proprietary and patented laser array technology, the future of mining, construction and rescue will be transformed through processes that increase yield productivity in mining, delivers efficiency and safety in all applications while decreasing operational time and decreasing costs associated with labor, insurance liability and environmental compliance.

The application of our unit known as the “Graduated Optical Colimator” (GOC) for the mining industry consists of a one kilowatt optical power fiber laser, directed by its unique GCO, to selectively spall igneous geological formations containing narrow veins of precious metals. Based on extensive studies by many universities and National Laboratories, including Argonne National Laboratory in its Laser Application Laboratory, Merger Mines Corporation has “productized” the “Thermal Fracturing “process for spalling rock in multiple applications.

Productizing the GOC unit is evolving through several calibration units. The Laboratory Test Unit, which is being used for system development purposes and subsequently will be used as the qualification unit for subsequent Scan Head Production in our Integration Facility. In terms of our units’ specific application to mining, we are on target with the development of several Characterization Units to be operated by Merger Mines Training Teams, to determine the exact laser power and exposure times required for any unique mining venue. This determination is then fed back to the Integration Facility for incorporation enabling the GOC to begin work immediately upon delivery to the site.

The initial mining application of the GOC was thought to be used for the narrow vein mining venue, with the initial design as a unit needing only a one meter by two meter access as the least needed for a man pass. This would allow a single head unit to mine at a rate of approximately 2.6 tons per hour of ore bearing material and waste, with the ability to roughly separate between the two. Ancillary equipment such as power generation equipment, air compressors and vacuum systems can either be remotely located or are sized to be transported along with the GOC.

Additional applications in mining would utilize additional GOCs and any necessary support equipment. One would be allowed to easily create portals, adits, drifts, cross cuts, raises and vents of any desired size and without the use of explosives.

Aside from mining ventures, the GOC could find uses in the Construction Industry such as bypass tunneling in the construction of dams, highway tunnels or the splitting of large rocks in slide situations where the clearing of highway passage is essential. Additional usage would be for excavating building foundations or trenches for electrical conduit, water mains or to access drain field for sewage systems in solid rock terrain. In its application related to rescue operations, the GOC could be efficiently used to clear access for those trapped in natural disasters such as earthquakes or mine cave-ins or spelunking misadventures.

Because the GOC and its support components are modular and of relatively small size and light in weight, they may be easily moved to any site without the use of "heavy equipment" and can be transported by helicopter as necessary. The prime mover for the GOC and any ancillary equipment so mounted has the ability to travel up to twenty meters per minute on level ground with a three hour battery life. The prime mover is also capable to climbing up to a thirty degree incline with any of our equipment mounted on board or pulling a companion equipment cart.

In some earlier discussions, Merger has thought that some forms of rock bolting could be reduced or eliminated by programming the GOC to dwell for a longer period with subsequent melting and re-solidify (vitrification) of surface material closing any fissures natural occurring or other side effect of prior blasting operations. Aside from the vitrification the process could prove valuable in creating a smoother surface for reducing resistance to ventilation air flow.

These are exciting times for Merger Mines Corporation. We are supported by an entire team of engineers as we examine the many applications of how our equipment might be successfully utilized. The team possesses impeccable credentials as we have melded together acumen in mechanical, opto-mechanical, manufacturing, electrical, mechatronics, software, optical and materials engineers supported by metallurgists, laser physicists, integration engineers, technical writers along with advisors in civil and mining engineering.

Guided by the various laboratory and scholarly studies highlighting "Thermal Fracturing" of geological materials, these disciplines have worked together to now produce the GOC with protocol software control.

Prospectus Information can be requested through Investor Relations at Merger Mines Corporation Marketing Department c/o Jim Niewiarowski: jim.n@mergerminescorp.com.

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